

page describing language shown in FIG. 5 is generated (S7) and the code data from step S5 or S7 is transmitted to the external printing system in step S8, so that the outputting processes can be accomplished.

As described above, there is an effect that quite the same style as that in the case of the local printing mode can be obtained from the external printing system in accordance with the request of the user by constructing the system in such manner that there is provided means for storing the print image of a document including, for instance, characters, figures, images, and the like in the case of outputting data to the printing system and for converting the print image into the image of the input method of the image data of the printing system as if the whole image was image data as output data and for outputting and that such means can be selected in the case of outputting data to the printing system.

Or, according to the invention, by directly making the document data correspond to the PDL regarding the output apparatus, the document data can be easily output to the external output apparatus connected to the document processing system.

[Another embodiment, for the case of the second method and the variable magnification output]

On the other hand, in the case where the resolution of the external printing system is higher than the resolution of the self system by, for instance, two or three times, when the bit image is stored into the main memory 5, by converting the bit image into an image which is two or three times as large as the original image and storing, an output of the higher resolution can be obtained. That is, even if the image stored in the main memory 5 as mentioned above is output by the external printing system of a high resolution with the equal magnification size, the logical resolution is unchanged and is equal to 400 dpi. However, for instance, after all of the coordinate values, line width, character size, and the like shown in FIG. 3 were doubled and the image was stored, if it is output as the data of the A4 size as shown in FIG. 8, the output result whose resolution is logically twice as large as that of the data of the equal magnification size is obtained.

The outputting operation by the MPU 4 based on the program stored in the main memory 5 in FIG. 1 will now be described with reference to FIG. 9. First, the user of the document processing system indicates an icon displayed on the CRT display 1 by using the pointing device 9, so that he can instruct whether the external printing system is used or not (S1 in FIG. 9) and whether the method 1 or the method 2 is to be used (S2 in FIG. 9) in the case of using the external printing system.

In S1, if it is determined that the external printing system is not to be used, step S3 follows and the bit map data corresponding to the document data is stored into the main memory 5 and is output to the printer 10.

On the other hand, if it is determined that the external printing system is to be used (S1) and the data is to be output by the output method 1 (S2), step S5 follows and the data shown in FIG. 7 is converted into the data of FIG. 4 as mentioned above. If it is decided that the data is to be output by the second output method, step S6 follows and the storage magnification of the bit image into the main memory is input. The discriminating process in step S2 can be also executed in accordance with the residual amount in the main memory 5 in FIG. 1. The bit image is stored into the main memory 5 in accordance with the storage magnification (S7). For instance, in the case of equal magnification i.e., no change in size, a code corresponding to the PDL shown in FIG. 5 is generated and, for instance, in the case of the

double magnification, a code corresponding to the PDL shown in FIG. 8 is generated (S8). The code data from step S5 or S8 is transmitted to the external printing system in step S9, so that the outputting processes can be accomplished.

As described above, there is an effect that a style which is substantially the same as that in the case of the local printing character can be obtained from the external printing system in accordance with a request of the user by providing means for storing a print image of a document including, for instance, characters, figures, images, and the like in the case of outputting data to the printing system and for converting the print image into the input style of the image data of the printing system and outputting as if the whole image were image data as output data and by enabling such means to be selected.

Or, according to the invention, by directly making the document data correspond to the page describing language regarding the output apparatus, the document data can be easily output to the external output apparatus connected to the document processing system.

Since it is possible to instruct the apparatus that the print image is to be enlarged and stored and converted into image of the image data input style of the printing system and the print image is output with the original size, the output of a high resolution and the same style can be obtained.

As described above, it is possible to provide a document processing system comprising: forming means for forming a document; converting means for converting the document data formed by the forming means into the data of the bit map style; and controlling means for controlling whether the conversion by the converting means is executed in accordance with the size based on the document data or not in the case of making the data of the bit map style which is converted by the converting means correspond to the data format of a PDL.

I claim:

1. An information processing apparatus which transfers print data to a printer, said apparatus comprising:
determining means for determining whether the print data is to be transferred to the printer in a first mode or in a second mode; and
control means for causing said information processing apparatus to convert the print data into bit map data and to transfer the converted bit map data to the printer when said determining means determines that the print data is to be transferred in the first mode, and to convert the print data into print data which can be interpreted by the printer and to transfer the converted data to the printer when said determining means determines that the print data is to be transferred in the second mode, wherein the converted data in the second mode includes information indicative of a data type.
2. An apparatus according to claim 1, wherein the print data comprises a character code and a control code written in a page description language.
3. An apparatus according to claim 1, wherein the printer prints the bit map data transferred by said apparatus.
4. An apparatus according to claim 1, wherein the printer interprets the print data transferred by said apparatus, converts the interpreted data into bit map data, and prints the converted bit map data.
5. An apparatus according to claim 1, further comprising means for setting the first or the second mode.
6. An information processing apparatus which transfers print data to a printer, said apparatus comprising:
determining means for determining whether the print data is to be transferred to the printer in a first mode or in a second mode;

second conversion means for converting the print data into print data which can be interpreted by the printer, wherein the data resulting from the second conversion means includes information indicative of a data type; and

7. An apparatus according to claim 6, wherein the print data comprises a character code and a control code written in a page description language.

9. An apparatus according to claim 6, wherein the printer interprets the print data transferred by said apparatus, converts the interpreted data into bit map data, and prints the converted bit map data.

11. A computer-executed method of processing information carried out in an information processing apparatus which transfers print data to a printer, said method comprising the steps of:

wherein the converted data in the second mode includes information indicative of a data type.

13. A method according to claim 11, further comprising the step of controlling the printer to print the bit map data transferred in said converting and transferring step.

14. A method according to claim 11, further comprising the step of controlling the printer to interpret the print data transferred in said converting and transferring step, convert the interpreted data into bit map data, and print the converted bit map data.

15. A method according to claim 11, further comprising the step of setting the first or the second mode.

16. A computer-executed method of processing information carried out in an information processing apparatus which transfers print data to a printer, said method comprising the steps of:

determining whether the print data is to be transferred to the printer in a first mode or in a second mode;
converting the print data using either a first conversion process for converting the print data into bit map data or a second conversion process for converting the print data into print data which can be interpreted by the printer in response to a determination made in said determining step, wherein the data resulting from the second conversion process includes information indicative of a data type; and

17 A method according to claim 16, wherein the print data comprises a character code and a control code written in a page description language.

18. A method according to claim 16, further comprising the step of controlling the printer to print the bit map data transferred in said transferring step.

19 A method according to claim 16, further comprising the step of controlling the printer to interpret the print data transferred in said transferring step, convert the interpreted data into bit map data, and print the converted bit map data

20. A method according to claim 16, further comprising the step of setting the first or the second mode.

21. A memory medium storing a program which, when loaded into and executed by a programmable apparatus, causes the apparatus to perform a method of processing information carried out in an information processing apparatus which transfers print data to a printer, said method comprising the steps of:

converting the print data into bit map data and transferring the converted bit map data to the printer when said determining step determines that the print data is to be transferred in the first mode, and converting the print data into print data which can be interpreted by the printer and transferring the converted data to the printer when said determining step determines that the print data is to be transferred in the second mode,

wherein the converted data in the second mode includes information indicative of a data type.

22. A memory medium according to claim 21, wherein the print data comprises a character code and a control code written in a page description language.

23. A memory medium according to claim 21, wherein the memory further comprises the step of controlling the printer to print the bit map data transferred in said converting and transferring step.

24 A memory medium according to claim 21, wherein the method further comprises the step of controlling the printer to interpret the print data transferred in said converting and transferring step, convert the interpreted data into bit map data, and print the converted bit map data.

25. A memory medium according to claim 21, wherein the method further comprises the step of setting the first or the second mode.

26. A memory medium storing a program which, when loaded into and executed by a programmable apparatus, causes the apparatus to perform a method of processing information carried out in an information processing apparatus which transfers print data to a printer, said method comprising the steps of:

determining whether the print data is to be transferred to the printer in a first mode or in a second mode;

converting the print data using either a first conversion process for converting the print data into bit map data or a second conversion process for converting the print data into print data which can be interpreted by the printer in response to a determination made in said determining step, wherein the data resulting from the second conversion process includes information indicative of a data type; and

transferring the converted bit map data or the converted print data to the printer.

27. A memory medium according to claim 26, wherein the print data comprises a character code and a control code written in a page description language.

29 A memory medium according to claim 26, wherein the method further comprises the step of controlling the printer to interpret the print data transferred in said transferring step, convert the interpreted data into bit map data, and print the converted bit map data.

31 A program product which, when loaded into and executed by a programmable apparatus, causes the apparatus to perform a method of processing information carried out in an information processing apparatus which transfers print data to a printer, said method comprising the steps of:

converting the print data into bit map data and transferring the converted bit map data to the printer when said determining step determines that the print data is to be transferred in the first mode, and converting the print data into print data which can be interpreted by the printer and transferring the converted data to the printer when said determining step determines that the print data is to be transferred in the second mode,

32 A program product according to claim 31, wherein the print data comprises a character code and a control code written in a page description language.

34. A program product according to claim 31, wherein the method further comprises the step of controlling the printer to interpret the print data transferred in said converting and

36 A program product which, when loaded into and executed by a programmable apparatus, causes the apparatus to perform a method of processing information carried out in an information processing apparatus which transfers print data to a printer, said method comprising the steps of

converting the print data using either a first conversion process for converting the print data into bit map data or a second conversion process for converting the print data into print data which can be interpreted by the printer in response to a determination made in said determining step, wherein the data resulting from the second conversion process includes information indicative of a data type, and

37. A program product according to claim 36, wherein the print data comprises a character code and a control code written in a page description language.

38. A program product according to claim 36, wherein the method further comprises the step of controlling the printer to print the bit map data transferred in said transferring step

39. A program product according to claim 36, wherein the method further comprises the step of controlling the printer to interpret the print data transferred in said transferring step, convert the interpreted data into bit map data, and print the converted bit map data.

40 A program product according to claim 36, wherein the method further comprises the step of setting the first or the second mode.

41. An apparatus according to claim 1, wherein the first mode is a mode in which said apparatus controls an output style of the print data.

42. An apparatus according to claim 1, wherein the second mode is a mode in which the printer controls an output style of the print data.

43. An apparatus according to claim 1, wherein in the first mode, the print data is provided in a page description language.

44. An apparatus according to claim 6, wherein the first mode is a mode in which said apparatus controls an output style of the print data.

45. An apparatus according to claim 6, wherein the second mode is a mode in which the printer controls an output style of the print data.

46. An apparatus according to claim 6, wherein in the first mode, the print data is provided in a page description language.

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47. A method according to claim 11, wherein the first mode is a mode in which said apparatus controls an output style of the print data.

48. A method according to claim 11, wherein the second mode is a mode in which the printer controls an output style of the print data.

49. A method according to claim 11, wherein in the first mode, the print data is provided in a page description language.

50. A method according to claim 16, wherein the first mode is a mode in which said apparatus controls an output style of the print data.

51. A method according to claim 16, wherein the second mode is a mode in which the printer controls an output style of the print data.

52. A method according to claim 16, wherein in the first mode, the print data is provided in a page description language.

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53. A memory medium according to claim 21, wherein the first mode is a mode in which said information processing apparatus controls an output style of the print data.

54. A memory medium according to claim 21, wherein the second mode is a mode in which the printer controls an output style of the print data.

55. A memory medium according to claim 21, wherein in the first mode, the print data is provided in a page description language.

56. A memory medium according to claim 26, wherein the first mode is a mode in which said information processing apparatus controls an output style of the print data.

57. A memory medium according to claim 26, wherein the second mode is a mode in which the printer controls an output style of the print data.

58. A memory medium according to claim 26, wherein in the first mode, the print data is provided in a page description language.

59. A program product medium according to claim 31, wherein the first mode is a mode in which said information processing apparatus controls an output style of the print data.

60. A program product according to claim 31, wherein the second mode is a mode in which the printer controls an output style of the print data.

61. A program product according to claim 31, wherein in the first mode, the print data is provided in a page description language.

62. A program product according to claim 36, wherein the first mode is a mode in which said information processing apparatus controls an output style of the print data.

63. A program product according to claim 36, wherein the second mode is a mode in which the printer controls an output style of the print data.

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64. A program product according to claim 36,
wherein in the first mode, the print data is provided in a
page description language.

65. A system including an information processing
apparatus and a printer, wherein said information processing
apparatus transfers print data to the printer and comprises:

a determiner for determining whether the print
data is to be transferred to the printer in a first mode or
in a second mode; and

a controller, arranged for causing said
information processing apparatus to convert the print data
into bit map data and to transfer the converted bit map data
to the printer when said determiner determines that the print
data is to be transferred in the first mode, and for causing
said information processing apparatus to convert the print
data into print data which can be interpreted by the printer
and to transfer the converted print data to the printer when
said determiner determines that the print data is to be
transferred in the second mode,

wherein the converted print data in the second
mode includes information indicative of a data type, and

wherein the printer controls printing based on the bit map data transferred in the first mode or the converted print data transferred in the second mode.

66. A system including an information processing apparatus and a printer, wherein said information processing apparatus transfers print data to the printer and comprises:

a determiner for determining whether the print data is to be transferred to the printer in a first mode or in a second mode;

a first converter, arranged for converting the print data into bit map data;

a second converter, arranged for converting the print data into converted print data which can be interpreted by the printer, wherein the converted print data includes information indicative of a data type; and

a controller, arranged for causing said information processing apparatus to (1) control either said first converter or said second converter to convert the print data in response to a determination made by said determiner, and (2) transfer the converted bit map data or the converted print data to the printer, depending on whether said first converter or said second converter is controlled,

wherein the printer controls printing based on
the bit map data transferred in the first mode or the
converted print data transferred in the second mode.

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